

REMARKS

The Official Action mailed May 19, 2003, and the prior art relied upon therein have been carefully reviewed. The claims in the application are now claims 1-4, 7-19 and 32-37 (the latter replacing claims 25-30). All of applicant's claims define novel and unobvious subject matter and should be allowed. Accordingly, the applicant respectfully requests favorable reconsideration and allowance.

Paragraph 13 of the Office Action Summary is not entirely clear to applicant in that only box 3 under paragraph 13 is checked, but there is no check mark applied to boxes 13 and "a". So that the record will be clear, applicant respectfully requests the examiner to explicitly acknowledge receipt of applicant's papers filed under §119.

Before addressing the rejections of record, applicant wishes to emphasize the importance and the non-obviousness of the present invention, which bears directly both on the claimed method and the resultant prills. In this regard, the object of the present invention is to produce prills which are very highly water soluble, as claimed, and this is exactly what is achieved in accordance with the present method, and what is called for as the product in claim 19. In fact, the water solubility of the NPK fertilizer

prills according to the present invention has to be at least 99% by weight, and the prills must have a dimension which is less than 4 mm.

The technical problem to be solved according to the present invention comprises making available a method providing a water soluble complex NPK fertilizer in prill form, highly soluble in water, which does not present segregation phenomena during its preparation, transportation or storage, and which contains no dust (a maximum of 1 % by weight non-solubles). Not only are the prills highly soluble in water, but they dissolve quickly, they have pronounced anti-compacting characteristics, and are useful in a variety of ways, e.g. in localized fertilization-irrigation, in widespread fertilization-irrigation, in leaf fertilization-irrigation, in hydroponic fertilization-irrigation, and even by distribution on soil followed by irrigation.

In contrast, conventional fertilizers such as those produced according to the applied references (discussed below more completely) are granular, having sizes much greater than the claimed prills, and are not nearly as soluble in water as are applicant's prills.

Claims 1-31 have been rejected under the second paragraph of §112. This rejection is respectfully traversed.

Applicant believes the claims as originally drafted, considered in light of applicant's specification (fully consistent with the law), would not have been confusing to those skilled in the art, and therefore the claims in their original form are fully in accordance with §112. At **worst**, the claims in their original form might be considered objectionable, but **only** as to form.

Nevertheless, in deference to the examiner's views and to avoid needless argument, the applicant has presented extensive cosmetic amendments to the claims. Except for the amendment of claim 19 and percentage amendments in claim 1, the amendments are of a formal nature only, i.e. made to place the claims in better form consistent with U.S. practice. Such amendments (again, except for the percentage amendments in claim 1 and the amendments of claim 19) are not "narrowing" amendments because the scope of the claims has not been reduced by such amendments. No limitations have been added in these regards and none are intended; the meaning of these claims remains the same.

Applicant respectfully requests withdrawal of the rejection.

Claim 19 has been amended extensively. The term "granules" has been deleted, and the technical terminology

"NPK" has been added. Importantly, the features of claims 22 and 24 have been incorporated into claim 19, and claims 20-24 have been deleted.

Previous claims 25-30 have now been rewritten as new claims 32-37 in a more simplified form, each incorporating the features of amended claim 19. These new claims are patentable for the reasons pointed out below.

Claims 1-4, 8, 10, 12, 14, 16, 19-22, 26, 28, 30 and 31 have been rejected under §102 as anticipated by either of two Brown et al patents 3,049,416 and 3,049,418 (collectively "Brown") or DE 12 23 3418 (hereinafter DE '418). These rejections are respectfully traversed.

The Brown patents have closely similar disclosures. These patents basically relate to the production of a phosphate fertilizer, and describe a process (see especially columns 2 and 4) in which phosphate rock is reacted with at least nitric acid, and optionally sulphuric acid, and potassium sulphate in the presence of water at e.g. 80°C. The operation is carried out continuously (column 2, lines 56-60 of Brown '418), and over at least one hour (or more), preferably using multiple tanks in series (column 3, lines 55-60).

Calcium sulphate is precipitated out and a gypsum filtration stage is used (column 4, lines 24-26 of Brown '418). Anhydrous ammonia may be added (column 2, lines 15, 24 and 44; example 1), whereby, for example, "a fertilizer container 58 units of plant nutrients per 100 units with an analysis of  $N:P_2O_5:K_2O$  of 15.25:15.25:27.5 may be obtained" (column 4, lines 29-31 of Brown '418).

While Brown provides a "basket" or "shotgun" disclosure which permits many variations, it is absolutely fundamental to Brown that the starting material is phosphate rock, and the phosphate rock must be reacted at least with nitric acid and preferably other acids as well. **This is not applicant's process.** Indeed, applicant does not see how it can be said that Brown anticipates applicant's method claims.

Thus, applicant's method begins with **soluble** salts and ends with a water soluble fertilizer in the form of prills. No series of operations as called for in claim 1 is disclosed in the Brown patents.

The Brown patents, relying on an acid attack of phosphate rock, require a subsequent neutralization step, e.g. ammonia (column 2, lines 23-27 of Brown '418; column 2, lines 15-19 of Brown '416). Applicant's process not only does not involve an acid attack, but also does not involve any neutralization step as required by Brown.

Taking Brown '416, for example, and comparing its disclosed process to the method of claim 1, Brown does **not** show or suggest a process for preparing a fertilizer comprising the following operations:

- separation from the solution obtained during the phase a) of the fraction of non soluble solids in suspension, thus obtaining a solution free of solids in suspension with a water content not exceeding 80 % by weight; see part (b) in claim 1;

- concentrating the solution free of solids in suspension obtained from part (b) until a solution of molten salts with a water content not exceeding 5% by weight is obtained; see part (c) in claim 1;

- cooling the solution obtained from phase (c) until prills are obtained, as claimed in part (d) of claim 1.

The process of applicant is clearly different from the process of Brown.

The same is true with respect to DE '418, which also faces the technical problem of preparing a NPK fertilizer by a acid attack of phosphate rock and subsequently neutralization by ammonia or carbonates or bicarbonates.

DE '418 discloses that nitrogen-phosphate-potassium fertilizer products are prepared by the reaction of  $P_2O_5 \cdot 3,5$  CaO or phosphate rock and potassium sulfate in the presence of

nitric acid (acid attack) in order to obtain a calcium sulfate precipitate ( $\text{CaSO}_4$ ). The resulting mixture is treated with ammonia (neutralizing agent) to provide nitrogen values and thereafter worked-up to solid fertilizer products.

DE '418 does **not** show (or suggest) a process for preparing a fertilizer as claimed in amended claim 1.

In particular, DE '418 patent does **not** show (or suggest) a process for preparing a fertilizer comprising the following operations:

- separation from the solution obtained during phase (a) of the fraction of non soluble solids in suspension, thus obtaining a solution free of solids in suspension with a water content not exceeding 80 % by weight; see part (b) of claim 1;

- concentrating the solution free of solids in suspension obtained from phase (b) until a solution of molten salts with a water content not exceeding 5% by weight is obtained; see part (c) of claim 1

- cooling the solution obtained from the phase c) until prills are obtained, as claimed in part (d) of claim 1.

DE '418 also does not anticipate any of applicant's method claims.

As regards the fertilizer claims, the rejection contains the assumption that "the salts are the same [and] the

solubility must be the same." This is an unjustified assumption of inherency which is not supported by any evidence whatsoever.

As regards the evidence which does exist, it is clear that the two (2) Brown patents do **not** disclose a water soluble NPK fertilizer in the form of prills having a solubility in water of at least 90% by weight (let alone 99%) and prills with a dimension lower than 7 mm (let alone 4 mm).

The same is true for DE '418 which does **not** even disclose a water soluble NPK fertilizer in the form of prills having a solubility in water of at least 90% (let alone 99%) by weight and prills with a dimension lower than 7 mm (let alone 4 mm).

As regards the law, applicant respectfully points out that inherency must be reasonably certain, and cannot be based on speculation, noting *In re Brink*, 164 USPQ 247, 249; *Ex parte Cyba*, 155 USPQ 756, 757 (1967); and *In re Oelrich*, 212 USPQ 323, 326 (1981). There is clearly no reasonable certainty that the features of applicant's water soluble prills as claimed are inherently provided by either Brown or De '418, and therefore inherency is neither inevitable nor reasonably certain.

Applicant respectfully requests withdrawal of the rejection based on §102.



Claims 5-7, 9, 11, 13, 15, 17, 18, 23-25, 27, 29-31 have been rejected under §103 as obvious from Brown in view of Goldberg et al USP 1,788,828 (Goldberg), Fr 2,519,626 (FR '626) and Seymour USP 3,323,863 (Seymour). This rejection is respectfully traversed.

This rejection is predicated on the assumption that the Brown patents disclose all the features of the independent claims 1 and 19, whereas this is not correct as pointed out above. The three subsidiary references have not been cited to make up for such deficiencies of Brown, and indeed do not do so. As the rejected claims depend from and incorporate the subject matter of the independent claims from which they depend directly or ultimately, it follows that reconstructing the Brown patents in view of the three subsidiary references, even if obvious to do so (not admitted by applicant), would not reach the subject matter of the dependent claims. Therefore, no *prima facie* case of obviousness exists, and the rejection should be withdrawn.

Accordingly, applicant respectfully requests withdrawal of the rejection based on §103.

The prior art document made of record and not relied upon has been noted, along with the implication that such

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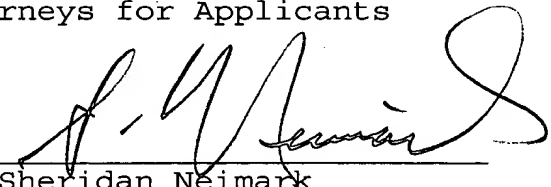
document is deemed by the PTO to be insufficiently pertinent to warrant its application against any of applicant's claims.

Favorable reconsideration and allowance are earnestly solicited. If the present Reply does not place the present application in condition for allowance, applicant respectfully requests the favor of a telephone call from the examiner to applicant's attorney so that applicant's attorney may schedule an interview before the issuance of any final Action.

Respectfully submitted,

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